1. An apparatus for detecting a compression top dead center phase of an engine to be tested, which can be attached to the engine, comprising:

an external driving means adapted to be attached to a crankshaft of the engine for rotating the crankshaft of the engine;

a top dead center detection means for detecting a top dead center phase of the crankshaft;

an exhaust pressure detection means arranged in the exhaust duct for detecting an exhaust pressure within an exhaust duct that is connected to an exhaust port of the engine; and

a controller that detects, of the top dead center phases detected by the top dead center detection means while the crankshaft is rotated by the external driving means, the top dead center phase that immediately precedes a rise in the exhaust pressure detected by the exhaust pressure detection means as the compression top dead center.

2. The apparatus for detecting a compression top dead center phase according to claim 1, further comprising an orifice that is arranged in the exhaust duct on a downstream side of the exhaust pressure detection means, and that reduces a cross-sectional area of the exhaust duct.

3. The apparatus for detecting a compression top dead center phase according to claim 1, wherein the external driving means is an electric motor.

4. (Amended) A method for detecting a compression top dead center of an engine to be tested, comprising:

rotating a crankshaft of the engine with an external driving portion;

detecting a top dead center phase of the crankshaft;

detecting an exhaust pressure in an exhaust duct connected to an exhaust port of the engine;

detecting, of the top dead center phases detected while the crankshaft is being rotated, the top dead center phase that immediately precedes a rise in the detected exhaust pressure as the compression top dead center.

5. The method according to claim 4, further comprising storing the detected compression top dead center as a reference value in a controller.

6. The method according to claim 4, wherein a stroke in which the exhaust pressure is detected includes a comparison of two exhaust pressure values for two times corresponding to two crankshaft phases.

7. The method according to claim 4, further comprising reducing a cross-sectional area of the exhaust duct before detecting the exhaust pressure in the exhaust duct.

8. (Amended) An apparatus for detecting a compression top dead center of an engine to be tested, which can be attached to an engine, comprising:

an electric motor adapted to be attached to a crankshaft of the engine for rotating the crankshaft;

a phase sensor for detecting a top dead center phase of the crankshaft, which corresponds to a top dead center position of a specified cylinder of the engine;

an exhaust duct connected to an exhaust port of the engine;

an exhaust pressure sensor arranged in the exhaust duct, the exhaust pressure sensor detects an exhaust pressure; and

a controller that receives a signal from the exhaust pressure sensor, and that detects, of the top dead center phases detected by the phase sensor while the crankshaft is rotated by the motor, the compression top dead center based on a change in the exhaust pressure detected by the exhaust pressure sensor.

9. The apparatus for detecting a compression top dead center phase according to claim 8, wherein the controller detects the top dead center phase that immediately precedes a rise in the exhaust pressure as the compression top dead center.

10. The apparatus for detecting a compression top dead center phase according to claim 8, further comprising an orifice that is arranged in the exhaust duct on a downstream side of the exhaust pressure detection means, and that reduces a cross-sectional area of the exhaust duct.

11. The apparatus for detecting a compression top dead center phase according to claim 8, wherein the controller controls a rotation speed of the electric motor.

12. The apparatus for detecting a compression top dead center phase according to claim 8, wherein the phase sensor is a magnetic sensor.

13. The apparatus for detecting a compression top dead center phase according to claim 8, wherein the phase sensor is an optical sensor.